

---

**REMARKS**

In an Office Action dated September 10, 2003, claims 1-7, and 9, all of the claims under consideration in the subject patent application, claim 8 being withdrawn from consideration, were rejected. By amendment above claim 1 has been rewritten to incorporate the subject matter in claim 9 which claim has now been cancelled. Support for the amendments in claim 1 can be found on page 7, lines 18-22.

Reconsideration of this application and allowance of the claims is respectfully requested in view of the foregoing amendments and the following remarks. Applicants respectfully acknowledge the opportunity for the Interview with the Examiner on December 9, 2003, and appreciate the Examiner's comments. Applicants presented in principal the following arguments.

In the Office Action the Examiner has rejected claims 1-7, and 9 as obvious over Fujikawa et al (US 5,704,214) in view of Calton et al (US 5,649,428). According to the Examiner Fujikawa et al discloses a CVD apparatus comprising most of the elements of the LPCVD apparatus as claimed in the present application. However, the Examiner recognizes that Fujikawa et al does not teach that the trap in the LPCVD apparatus is provided with an honeycomb-structure cylindrical filler in a flowing passage through which the used raw material flows. Further, according to the Examiner the Fujikawa et al reference does not teach the length of the honeycomb-structure cylindrical filler and the maximum diameter of the passage holes of the filler. The Examiner asserts that Fujikawa et al teach a bypass for the trap. The trap in the present invention has two back-flow valves whereas Fujikawa et al only teach one back-flow

valve in the by-pass pipe. In addition, the Examiner asserts that Calton et al teaches a gas trap with a honeycomb structure, without increasing the size of the gas trap, which would have negative effects on the ability of the LPCVD system to maintain its operational pressure.

In addition the Examiner stated that the response filed on July 1, 2003 was considered not persuasive. According to the Examiner a person skilled in the art would have been motivated to insert the honeycomb structure as taught by Calton et al in the gas trap of an CVD apparatus as taught by Fujikawa et al. The motivation is found in the fact that the insertion of an honeycomb structure would increase the heat transferred to the trap as taught by Calton et al. Neither was the Examiner persuaded that the two references were from non-analogous art, nor that the moisture transfer wheel in Calton et al is not a gas trap.

Applicants submit that the present invention claims a LPCVD apparatus with a gas trap which is provided with metal honeycomb-structure cylindrical fillers in a flowing passage through which the used raw material flows. It is an critical feature of the invention that in the LPCVD apparatus gas trap the honeycomb structure cylindrical fillers are provided so as to recapture raw material which otherwise would be lost in the exhaust of the LPCVD apparatus.

The Fujikawa et al reference does not teach or suggest increasing the cooling efficiency by including a honeycomb structure in the trap. Cooling efficiency as taught by Fujikawa et al is accomplished by changing the temperature of the coolant and the angle of the fins (four fins) in the trap. Although positioning of the fins within the trap may increase the efficiency of contact between the raw material gas and the fins, the reference in no way suggests inserting a honeycomb structure cylindrical filler in the gas trap to increase the available surface area for cooling in the gas trap. Fujikawa et al recognize the limitations of the gas trap, and there is no

teaching or suggestion to correct the problem by including the honeycomb structure as claimed in the present invention.

The Calton et al reference discloses a moisture transfer wheel in an air conditioning system. This honeycomb structure in Calton et al is made of material which is non-metallic, has high strength, is temperature resistant, and has low thermal conductivity. Furthermore, the surface of the channels in the honeycomb structure made with this material can be coated with a desiccant, which interacts with the fluid media flowing through the channels to achieve water absorption from the air.

In contrast, the specification of the present invention indicates that the honeycomb structure should be made of a metal to increase cooling as metal has a high capacity for transferring heat. Therefore, in addition that there is no motivation to combine a reference in the art of CVD apparatuses with a reference in the art of air conditioners, a combination of Fujikawa et al. and Calton et al. does not teach a gas trap transferring heat from the exhaust gas as in the presently claimed invention.

Moreover, in the moisture transfer wheel of Calton et al the honeycomb structure is made from a temperature resistant, low thermal conductivity material, and is coated with desiccant to maximize absorption of water within the honeycomb structure. This absorption is not desired in the present invention because the gas trap is designed to cool the exhaust gas, for which the honeycomb structure needs to have a high thermal conductivity. Thus, it is incorrect to assert that the honeycomb structure as taught by Calton et al would increase the heat transferred to the trap. This heat transfer is essential for the trap to be operational. Therefore, the honeycomb

---

structure in the gas trap, as in amended claim 1, is very different from the honeycomb structure in the prior art moisture transfer wheel.

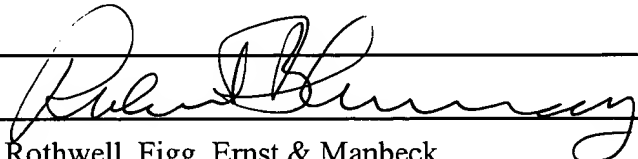
Applicants respectfully submit that the claimed invention in claims 1-7, as amended, is unobvious over Fujikawa et al. in view of Calton et al., as the Fujikawa et al. reference does not teach or suggest a honeycomb structure cylindrical filler in the gas trap and there is no motivation to combine Calton et al. with Fujikawa et al. The Examiner indicated in the Interview that the rejection would be maintained as there is motivation to combine an honeycomb structure in a moisture transfer wheel, which also transfers heat, as taught by Calton et al with the CVD apparatus according to Fujikawa et al to teach the current invention. However Applicants request reconsideration by the Examiner and respectfully request withdrawal of the rejection.

Applicants also submitted at the interview that the honeycomb structure as taught by Calton et al would not work for its intended purpose in the current invention. The honeycomb structure of the current invention requires having certain particular dimensions as disclosed in the specification. The constraints on the dimensions of the honeycomb structure are dictated by the need for the maintenance of the low pressure in the reaction chamber of the CVD apparatus. The Examiner indicated that Calton et al discusses dimensional ranges and a person of ordinary skill in the art would readily decide on the proper dimensions as Fujikawa et al also discloses the need to maintain a low pressure in the reaction chamber of the CVD apparatus.

Finally, applicants submit if the Examiner maintains his rejection that the amendment to the claims should be entered because only a previously presented claim has been cancelled and the subject matter of that claim is incorporated in independent claim 1. The amendment would

the subject matter of that claim is incorporated in independent claim 1. The amendment would simplify the issues for appeal and would not necessitate further searching by the Examiner.

Reconsideration and favorable action are earnestly requested, alternatively applicants request that the amendments be entered.

RESPECTFULLY SUBMITTED,					
NAME AND REG. NUMBER	Robert B. Murray, Registration No. 22,980				
SIGNATURE				DATE	12/10/03
Address	Rothwell, Figg, Ernst & Manbeck 1425 K Street, N.W., Suite 800				
City	Washington	State	D.C.	Zip Code	20005
Country	U.S.A.	Telephone	202-783-6040	Fax	202-783-6031